

FIG. 1

1 TTGGTAGCAACGGAAACGGCGGGCGGCGGTTTTGGCCCCGGCTCCCGGCGGGCTCCTTGGTC
61 TCGGCGGGGCTCCCCGCCCCCTTCGTCGTCGTCCTTCTCCCCCTCGCCAGCCCGGGCGCCC
121 CTCCGGCCGCGCCAACCCGCGCCTCCCCGCTCGGCGCCCGTGCGTCCCGCCGCGTTCCG
181 GCGTCTCCTTGGCGCGCCCCGGCTCCCGGCTGTCCCGCCCGGCGTGCGAGCCGGTGTATG
SCA2-A
241 GGCCCCTCACCATGTCGCTGAAGCCCCAGCAGCAGCAGCAGCAGCAGCAGCAACAGCAGC
SCA2-B
301 AGCAGCAACAGCAGCAGCAGCAGCAGCAGCAGCAGCCGCCGCCCGCGGCTGCCAATGTCCGCA
361 AGCCCGGCGGCAGCGGCCTTCTAGCGTCGCCCCGCCGCCGCGCCTTCGCCGTCCTCGTCCT
421 CGGTCTCCTCGTCCTCGGCCACGGCTCCCTCCTCGGTGGTCGCGGCGACCTCCGGCGGGCG
481 GGAGGCCCGGCCTGGGCAG GTGGGTGTCGGCACCCC

FIG. 2

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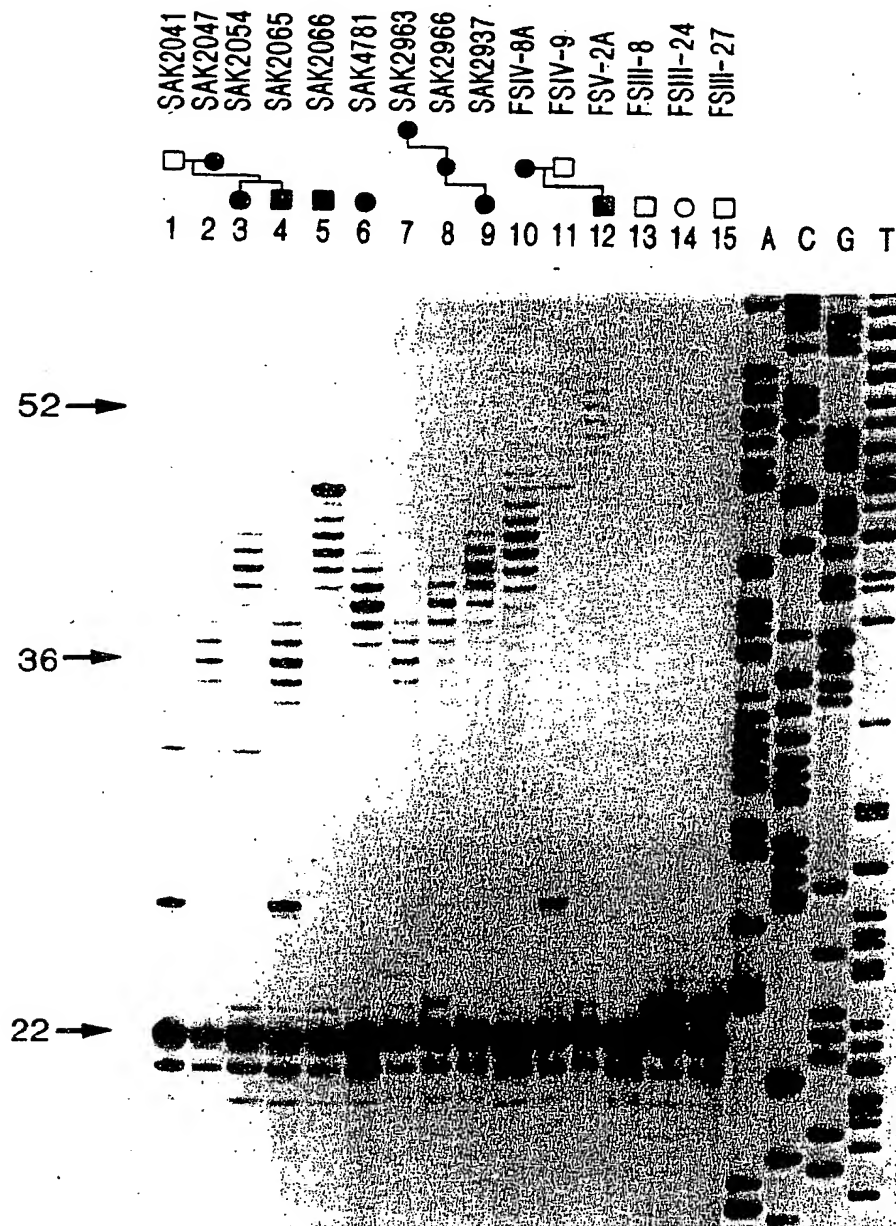


FIG. 3

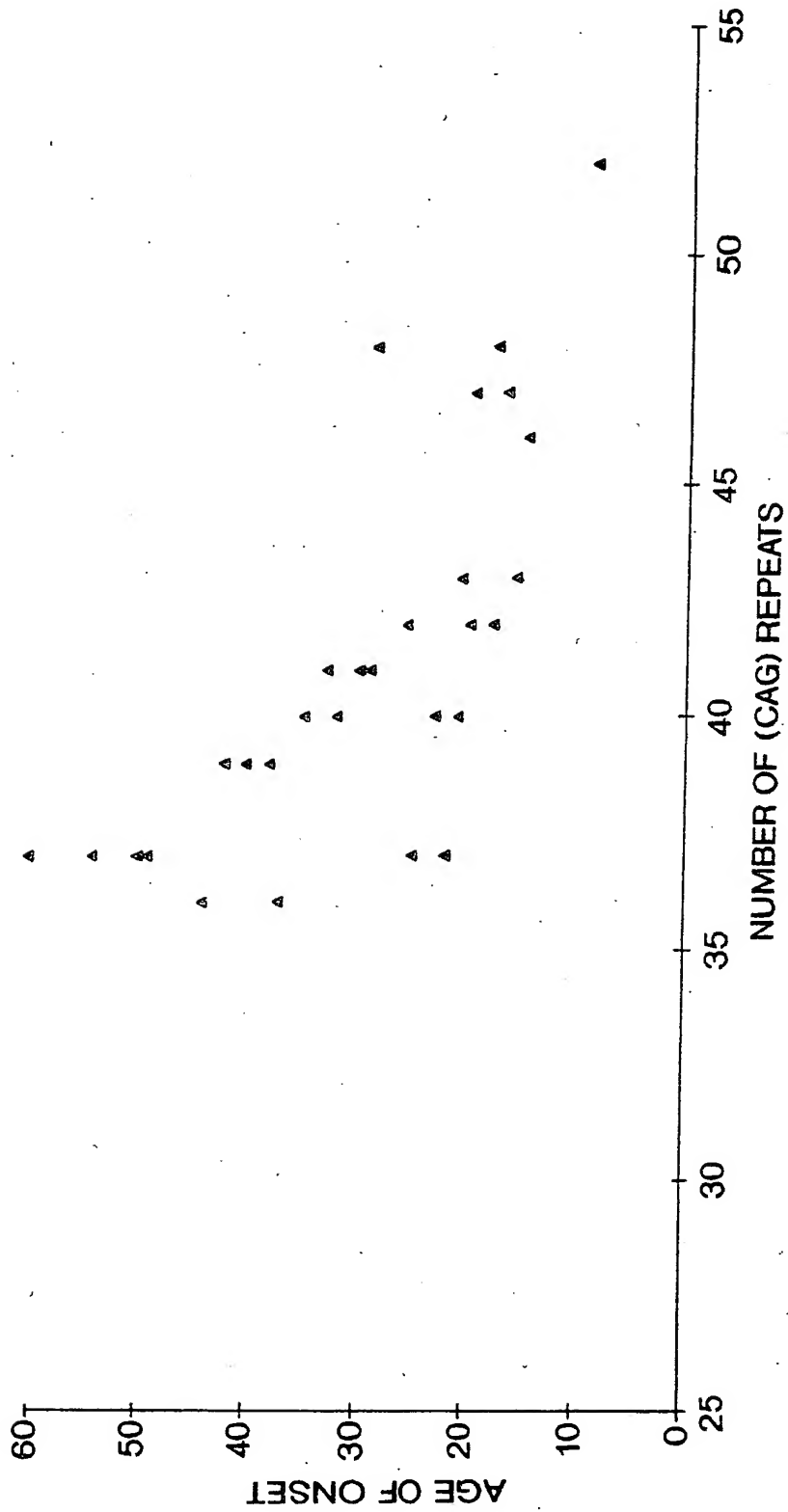


FIG. 4

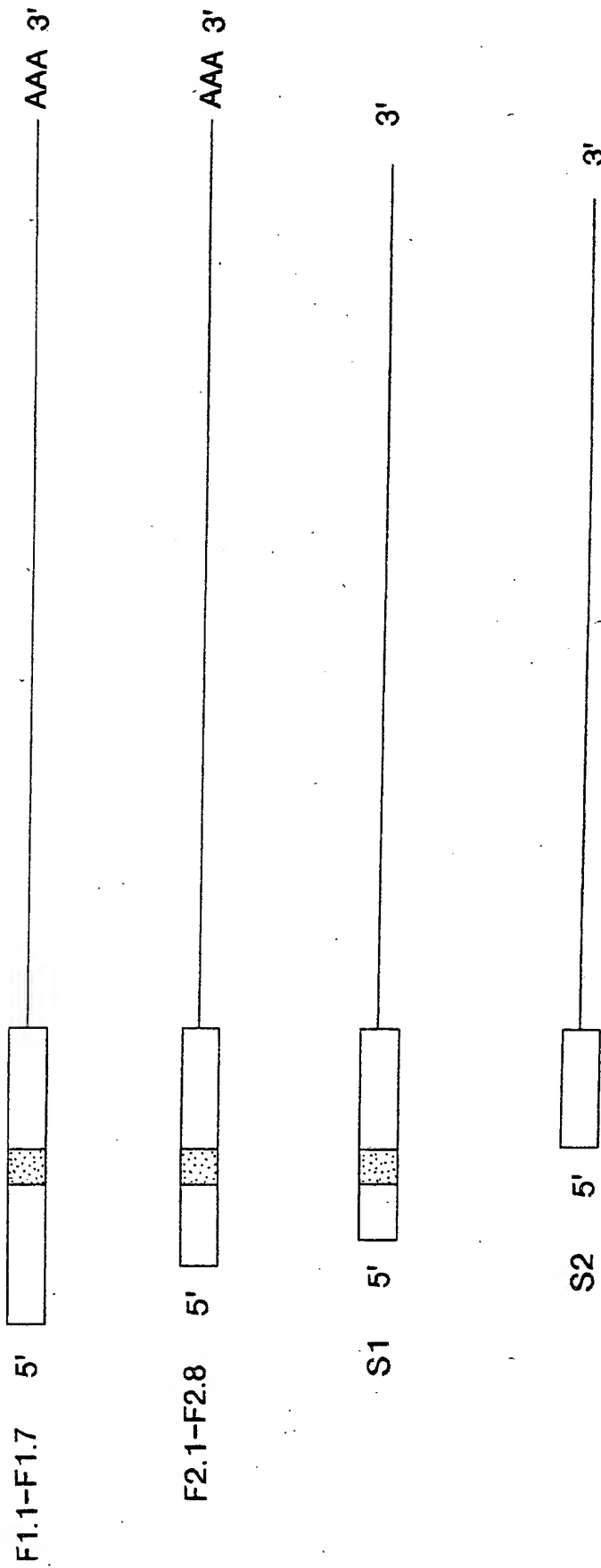


FIG. 5

1	ACCCCCGAGAAAGCAACCCAGCGCGCCCGCTCCTCACGTGTCCCTCCCGGCCCGGG	60
61	GCCACCTCACGTTCTGCTTCCGTCTGACCCCTCCGACTTCCGGTAAAGAGTCCCTATCCG	120
121	CACCTCCGCTCCCACCCGGCGCCTEGGCGCGCCCGCCCTCCGATGCGCTCAGCGGCCGCA	180
1		6
181	GCTCCTCGGAGTCCCGCGGTGGCCACCGAGTCTCGCCGCTTCGCCGAGCCAGGTGGCCC	240
7	A P R S P A V A T E S R R F A A A R W P	26
241	GGGTGGCGCTCGCTCCAGCGGCCGGCGCGGAGCGGGCGGGCGGGCGGTGGCGCGGCC	300
27	G W R S L Q R P A R R S G R G G G A A	46
301	CCGGGACCGTATCCCTCCGCGCCCTCCCGCGCCCGGGCCCGGGCCCCCTCCCTCCCGG	360
47	P G P Y P S A A P P P P G P G P P P S R	66
361	CAGAGCTCGCCTCCCTCCGCTCAGACTGTTTGGTAGCAACGGCAACGGCGGGCGCG	420
67	Q S S P P S A S D C F G S N G N G G G A	86
421	TTTCGGCCCGGCTCCCGGGGCTCCTTGGTCTCGGCGGGCCTCCCGCCCCCTTCGTGTC	480
87	F R P G S R R L L G L G G P P R P F V V	106
481	GTCCTTCTCCCCCTCGCCAGCCCGGGCGCCCTCCGGCCGCGCAACCCGCGCCTCCCCG	540
107	V L L P L A S P G A P P A A P T R A S P	126
541	CTCGGCGCCCGTGCCTCCCGCGCGGTTCGGCGTCTCCTTGGCGCGCCCGGCTCCCGGC	600
127	L G A R A S P P R S G V S L A R P A P G	146
	SCA2-A	
601	TGTCCCCGCCCGGCGTGCAGCCGGTGTATGGGCCCTCACCATGTCGCTGAAGCCCCAG	660
147	C P R P A C E P V Y G P L T M S L K P Q	166
661	CAGCAGCAGCAGCAGCAGCAACAGCAGCAGCAGCAACAGCAGCAGCAGCAGCAGCAG	720
167	Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q Q	186
	SCA2-B	
721	CAGCCGCCCGCCCGCGGCTGCCAATGTCCGCAAGCCCGGCGGCAGCGGCCTTCTAGCGTCG	780
187	Q P P P A A A N V R K P G G S G L L A S	206
781	CCCGCCCGCGCCTTCGCCGTCTCGTCTCGGTCTCCTCGTCTCCTCGGCCACGGCTCCC	840
207	P A A A P S P S S S S V S S S S A T A P	226
841	TCCTCGGTGGTTCGCGGCGACCTCCGGCGGGCGGGAGGCCCGGCTGGGCAGAGGTGGAAC	900
227	S S V V A A T S G G G R P G L G R G R N	246
901	AGTAACAAAGGACTGCCTCAGTCTACGATTTCTTTTGATGGAATCTATGCAATATGAGG	960
247	S N K G L P Q S T I S F D G I Y A N M R	266
961	ATGGTTTCATATACTTACATCAGTTGTTGGCTCCAAATGTGAAGTACAAGTGAAAATGGA	1020
267	M V H I L T S V V G S K C E V Q V K N G	286
	SCA2-14B	
1021	GGTATATATGAAGGAGTTTTTAAACTTACAGTCCGAAGTGTGATTGGTACTTGATGCC	1080
287	G I Y E G V F K T Y S P K C D L V L D A	306
1081	GCACATGAGAAAAGTACAGAATCCAGTTCGGGGCCGAAACGTGAAGAAATAATGGAGAGT	1140
307	A H E K S T E S S S G P K R E E I M E S	326
1141	ATTTTGTTCAAATGTTTCAGACTTTGTTGTGGTACAGTTTAAAGATATGGACTCCAGTTAT	1200
327	I L F K C S D F V V V Q F K D M D S S Y	346
1201	GCAAAAAGAGATGCTTTTACTGACTCTGCTATCAGTGCTAAAGTGAATGGCGAACACAAA	1260
347	A K R D A F T D S A I S A K V N G E H K	366
1261	GAGAAGGACCTGGAGCCCTGGGATGCAGGTGAACCTCACAGCCAATGAGGAACCTTGAGGCT	1320
367	E K D L E P W D A G E L T A N E E L E A	386
1321	TTGGAAAATGACGTATCTAATGGATGGGATCCCAATGATATGTTTCGATATAATGAAGAA	1380
387	L N D V S N G W D P N D M F R Y N E E	406
1381	AATTATGGTGTAGTGTCTACGTATAGTACGATTTATCTTCGTATACAGTGCCTTAGAA	1440
407	N Y G V V S T Y D S S L S S Y T V P L E	426
1441	AGAGATAACTCAGAAGAATTTTAAACGGGAAGGGCAAACCAAGTTAGCAGAAGAA	1500
427	R D N S E E F L K R E A R A N Q L A E E	446

FIG. 6A

1501	ATTGAGTCAAGTGCCCGAGTACAAAGCTCGAGTGGCCCTGGAAAATGATGATAGGAGTGAG	1560
447	I E S S A Q Y K A R V A L E N D D R S E	466
1561	GAAGAAAAATACACAGCAGTTTCAGAGAAATTCAGTGAACGTGAGGGGCACAGCATAAAC	1620
467	E E K Y T A V Q R N S S E R E G H S I N	486
1621	ACTAGGGAAAATAAATATATTCCTCCTGGACAAAGAAATAGAGAAGTCATATCCTGGGGA	1680
487	T R E N K Y I P P G Q R N R E V I S W G	506
1681	AGTGGGAGACAGAATTCACCGCGTATGGGCCAGCCTGGATCGGGCTCCATGCCATCAAGA	1740
507	S G R Q N S P R M G Q P G S G S M P S R	526
1741	TCCACTTCTCACACTTCAGATTTCAACCCGAATTCTGGTTCAGACCAAAGAGTAGTTAAT	1800
527	S T S H T S D F N P N S G S D Q R V V N	546
1801	GGAGGTGTTCCCTGGCCATCGCCTTGCCCATCTCCTTCTCTCGCCACCTTCTCGCTAC	1860
547	G G V P W P S P C P S P S S R P P S R Y	566
1861	CAGTCAGGTCCCAACTCTCTTCCACCTCGGGCAGCCACCCCTACACGGCCGCCCTCCAGG	1920
567	Q S G P N S L P P R A A T P T R P P S R	586
1921	CCCCCTCGCGGCCATCCAGACCCCGTCTCACCCCTCTGCTCATGGTTCTCCAGCTCCT	1980
587	P P S R P S R P P S H P S A H G S P A P	606
1981	GTCTCTACTATGCCTAAACGCATGTCTTCAGAAGGGCCTCCAAGGATGTCCCCAAAGGCC	2040
607	V S T M P K R M S S E G P P R M S P K A	626
2041	CAGCGACATCCTCGAAATCACAGAGTTTCTGCTGGGAGGGGTTCCATATCCAGTGGCCTA	2100
627	Q R H P R N H R V S A G R G S I S S G L	646
2101	GAATTTGTATCCCAACCCACCCAGTGAAGCAGCTACTCCTCCAGTAGCAAGGACCAGT	2160
647	E F V S H N P P S E A A T P P V A R T S	666
2161	CCCTCGGGGGGAACGTGGTCATCAGTGGTCAGTGGGGTTCCAAGATTATCCCCTAAACT	2220
667	P S G G T W S S V V S G V P R L S P K T	686
2221	CATAGACCCAGGTCTCCCAGACAGAACAGTATTGGAAATACCCCCAGTGGGCCAGTTCTT	2280
687	H R P R S P R Q N S I G N T P S G P V L	706
2281	GCTTCTCCCCAAGCTGGTATTATTCCAAGCTGAAGCTGTTGCCATGCCTATTCCAGCTGCA	2340
707	A S P Q A G I I P T E A V A M P I P A A	726
2341	TCTCCTACGCCTGCTAGTCTGTCATCGAACAGAGCTGTTACCCCTTCTAGTGAGGCTAAA	2400
727	S P T P A S P A S N R A V T P S S E A K	746
2401	GATTCCAGGCTTCAAGATCAGAGGCAGAACTCTCCTGCAGGGAATAAAGAAAATATTTAA	2460
747	D S R L Q D Q R Q N S P A G N K E N I K	766
2461	CCCAATGAAACATCACCTAGCTTCTCAAAAAGCTGAAAACAAAGGTATATCACCAGTTGTT	2520
767	P N E T S P S F S K A E N K G I S P V V	786
2521	TCTGAACATAGAAAACAGATTGATGATTTAAAGAAATTTAAGAATGATTTTAGGTTACAG	2580
787	S E H R K Q I D D L K K F K N D F R L Q	806
2581	CCAAGTTCTACTTCTGAATCTATGGATCAACTACTAAACAAAATAGAGAGGGAGAAAAA	2640
807	P S S T S E S M D Q L L N K N R E G E K	826
2641	TCAAGAGATTTGATCAAAGACAAAATTGAACCAAGTGCTAAGGATTCTTTTCATTGAAAAT	2700
827	S R D L I K D K I E P S A K D S F I E N	846
2701	AGCAGCAGCAACTGTACCAGTGGCAGCAGCAAGCCGAATAGCCCCAGCATTTCCTTCA	2760
847	S S S N C T S G S S K P N S P S I S P S	866
2761	ATACTTAGTAACACGGAGCACAAGAGGGGACCTGAGGTCACTTCCCAAGGGGTTTCAGACT	2820
867	I L S N T E H K R G P E V T S Q G V Q T	886
2821	TCCAGCCCAGCATGTAAACAAGAGAAAGACGATAAGGAAGAGAAGAAAGACGCAGCTGAG	2880
887	S S P A C K Q E K D D K E E K K D A A E	906
2881	CAAGTTAGGAAATCAACATTGAATCCCAATGCAAAGGAGTTCAACCCACGTTCTTCTCT	2940
907	Q V R K S T L N P N A K E F N P R S F S	926
2941	CAGCCAAAGCCTTCTACTACCCCACTTCACCTCGGCCTCAAGCACAACCTAGCCCATCT	3000
927	Q P K P S T P T P S P R P Q A Q P S P S	946
3001	ATGGTGGGTTCATCAACAGCCAACCTCCAGTTTATCTACTCAGCCTGTTTGTGTTTGCACCAAAT	3060
947	M V G H Q Q P T P V Y T C Q P V C F A P N	966
3061	ATGATGTATCCAGTCCCAGTGAGCCCAGGCGTGAACCTTTATACCCAATACCTATGACG	3120
967	M M Y P V P V S P G V Q P L Y P I P M T	986

FIG. 6B

3121	CCCATGCCAGTGAATCAAGCCAAGACATATAGAGCAGTACCAAATATGCCCCAACAGCGG	3180
987	P M P V N Q A K T Y R A V P N M P Q Q R	1006
3181	CAAGACCAGCATCATCAGAGTGCCATGATGCACCCAGCGTCAGCAGCGGGCCACCGATT	3240
1007	Q D Q H H Q S A M M H P A S A A G P P I	1026
3241	GCAGCCACCCCAACAGCTTACTCCACGCAATATGTTGCCTACAGTCCTCAGCAGTTCCCA	3300
1027	A A T P P A Y S T Q Y V A Y S P Q Q F P	1046
3301	AATCAGCCCCCTTGTTTCAGCATGTGCCACATTATCAGTCTCAGCATCCTCATGTCTATAGT	3360
1047	N Q P L V Q H V P H Y Q S Q H P H V Y S	1066
3361	CCTGTAATACAGGGTAATGCTAGAATGATGGCACCACCAACACACGCCAGCCTGGTTTA	3420
1067	P V I Q G N A R M M A P P T H A Q P G L	1086
3421	GTATCTTCTTCAGCAACTCAGTACGGGGCTCATGAGCAGACGCATGCGATGTATGCATGT	3480
1087	V S S S A T Q Y G A H E Q T H A M Y A C	1106
3481	CCCAAATTACCATAACAAGGAGACAAGCCCTTCTTTCTACTTTGCCATTTCCACGGGC	3540
1107	P K L P Y N K E T S P S F Y F A I S T G	1126
3541	TCCCTTGCTCAGCAGTATGCGCACCCCTAACGCTACCCTGCACCCACATACTCCACACCCT	3600
1127	S L A Q Q Y A H P N A T L H P H T P H P	1146
3601	CAGCCTTCAGCTACCCCCACTGGACAGCAGCAAAGCCAACATGGTGGAAGTCATCCTGCA	3660
1147	Q P S A T P T G Q Q Q S Q H G G S H P A	1166
3661	CCCACTCCTGTTTCAGCACCATCAGCACCAGGCCGCCAGGCTCTCCATCTGGCCAGTCCA	3720
1167	P S P V Q H H Q H Q A A Q A L H L A S P	1186
3721	CAGCAGCAGTCAGCCATTTACCACGCGGGGCTTGCGCCAACCTCCACCCTCCATGACACCT	3780
1187	Q Q Q S A I Y H A G L A P T P P S M T P	1206
3781	GCCTCCAACAGCAGTCGCCACAGAATAGTTTCCAGCAGCACAACAGACTGTCTTTACG	3840
1207	A S N T Q S P Q N S F P A A Q Q T V F T	1226
3841	ATCCATCCTTCTCAGTTTCAGCCGGCGTATACCAACCCACCCACATGGCCCACGTACCT	3900
1227	I H P S H V Q P A Y T N P P H M A H V P	1246
3901	CAGGCTCATGTACAGTCAGGAATGGTTCCTTCTCATCCAACCTGCCCATGCGCCAATGATG	3960
1247	Q A H V Q S G M V P S H P T A H A P M M	1266
3961	CTAATGACGACACAGCCACCCGGCGGTCCCCAGGCCGCCCTCGCTCAAAGTGCACTACAG	4020
1267	L M T T Q P P G G P Q A A L A Q S A L Q	1286
4021	CCCATTCCAGTCTCGACAACAGCGCATTTCCCCTATATGACGCACCCTTCAGTACAAGCC	4080
1287	P I P V S T T A H F P Y M T H P S V Q A	1306
4081	CACCACCAACAGCAGTTGTAAGGCTGCCCTGGAGGAACCGAAAGGCCAAATTCCCTCCTC	4140
1307	H H Q Q Q L *	1326
4141	CCTTCTACTGCTTCTACCAACTGGAAGCACAGAAACTAGAAATTTTATTTTGTTTT	4200
4201	TAAAATATATATGTTGATTTCTTGTAACATCCAATAGGAATGCTAACAGTTCACTTGACAG	4260
4261	TGGAAGATACTTGGACCGAGTAGAGGCATTTAGGAACCTGGGGGCTATTCCATAATTCCA	4320
4321	TATGCTGTTTCAGAGTCCCGCAGGTACCCAGCTCTGCTTGCCGAAACTGGAAGTTATTT	4380
4381	ATTTTTTAATAACCCCTTGAAAGTCATGAACACATCAGCTAGCAAAAGAAGTAACAAGAGT	4440
4441	GATTCTTGCTGCTATTACTGCTAAAAA	4481

FIG. 6C

Ataxin-2	1		50
Mouse Ataxin-2		VYGPLTMSLK PQQQQQQQQQ QQQQQQQQQQ QQQPPPAAN VRKPGGSGLL	
A2RP		HEGPLTMSLK PQPQ..... PPAPAT GRKPGG.GLL	
Consensus	LA PQPPPPQQHQ ER.....	
		-----L- PQ-----	
Ataxin-2	51		100
Mouse Ataxin-2		ASPAAAPSPS SSSVSSSSAT APSSVVA... ATSGGGRPGL GRGRNSNKG	
A2RP		SSPGAAP.AS AAVTSASVP APAAPVASSS AAAGGGRPGL GRGRNSSKGL	
Consensus		..PGAAAIGS A..... RGQSTGKGP	
		--P-AA---S ----- -RG---KG-	
Ataxin-2	101		150
Mouse Ataxin-2		PQSTISFDGI YANMRMVHIL TSVVGSKCEV QVKNGGIYEG VFKEYSPKCD	
A2RP		PQPTISFDGI YANVRMVHIL TSVVGSKCEV QVKNGGIYEG VFKEYSPKCD	
Consensus		PQSPV.FEGV YNNSRMLHFL TAVVGSTCDV KVKNGTTYEG IFKTLSSKFE	
		PQ----F-G- Y-N-RM-H-L T-VVGS-C-V -VKNG--YEG -FKT-S-K--	
Ataxin-2	151		200
Mouse Ataxin-2		LVLDAAEHKS TESSSGPKRE EIMESILFKC SDFVVVQFKD MDSSYAKRDA	
A2RP		LVLDAAEHKS TESSSGPKRE EIMESVLFKC SDFVVVQFKD TDSSYARRDA	
Consensus		LAVDAVHRKA SEPAGGPRRE DIVDTMVFKP SDVMLVHFRN VDFNYATKDK	
		L--DA-H-K- -E---GP-RE -I-----FK- SD---V-F-- -D--YA--D-	
Ataxin-2	201		250
Mouse Ataxin-2		FTDSAIS..A KVNGEHKEKD LEPWDAGELT ANEELEALEN DVSNGWDPND	
A2RP		FTDSALS..A KVNGEHKEKD LEPWDAGELT ASEELE.LEN DVSNGWDPND	
Consensus		FTDSAIAMNS KVNGEHKEKV LQRWEGGD.S NSDDYD.LES DMSNGWDPNE	
		FTDSA----- KVNGEHKEK- L--W--G--- -----LE- D-SNGWDPN-	
Ataxin-2	251		300
Mouse Ataxin-2		MFRYNEENYG VVSTYDSSLS SYTVPLERDN SEEFKREAR ANQLAEEIES	
A2RP		MFRYNEENYG VVSTYDSSLS SYTVPLERDN SEEFKREAR ANQLAEEIES	
Consensus		MFKFNEENYG VKTTYDSSLS SYTVPLEKDN SEEFRQREL R AAQLAREIES	
		MF--NEENYG V--TYDSSLS SYTVPLE-DN SEEF--RE-R A-QLA-EIES	
Ataxin-2	301		350
Mouse Ataxin-2		SAQYKARVAL ENDD.RSEEE KYTAVQRNCS EREGHSINTR ENKYIPPGQR	
A2RP		SAQYKARVAL ENDD.RSEEE KYTAVQRNCS DREGHGPNTN DNKYIPPGQR	
Consensus		SPQYRLRIAM ENDDGRTEEE KHAVQRQGS GRESPLASR EGKYIP....	
		S-QY--R-A- ENDD-R-EEE K--AVQR--S -RE-----R --KYIP----	
Ataxin-2	351		
Mouse Ataxin-2		NR	
A2RP		NR	
Consensus		..	
		--	

FIG. 7